FLOW CONTORL

DIGITAL IMAGE PROCESSING
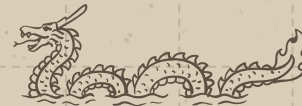
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INTRODUCTION

In digital image processing, flow control refers to the techniques used to manage the processing of image data. There are different types of flow control techniques used in digital image processing, such as **sequential, conditional, and iterative processing**.

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Flow control techniques are essential in digital image processing because they allow for the efficient and effective processing of large amounts of image data. By using appropriate flow control techniques, it is possible to extract meaningful information from images, correct errors, and enhance the visual quality of images.

SEQUENTIAL PROCESSING

Sequential processing is the most basic type of flow control, where image data is processed one pixel or block at a time, in a predetermined order. This type of processing is suitable for simple operations that do not require complex decision-making.

CONDITIONAL PROCESSING

- Conditional processing, on the other hand, involves making decisions based on the values of specific pixels or regions of an image. For example, a conditional operation might be used to identify and remove areas of an image that are below a certain threshold, or to enhance regions of an image that have a particular texture or color.

ITERATIVE PROCESSING

- Iterative processing involves repeatedly applying a set of operations to an image until a desired result is achieved. This type of processing is useful for tasks such as image restoration or enhancement, where multiple passes are required to achieve the desired result.

FLOW CONTROL OPERATIONS

- **CONDITIONAL STATEMENTS**
- **LOOPING STRUCTURES**
- **MASKING**
- **SEGMENTATION**

CONDITIONAL STATEMENTS:

This technique involves using if-else statements to selectively process regions of an image based on certain criteria. For example, if you want to apply a particular filter to only the edges of an image, you can use a conditional statement to identify the edge pixels and apply the filter only to those pixels.

LOOPING STRUCTURES:

Looping structures such as for-loops and while-loops can be used to apply a particular operation to all pixels of an image or to specific regions of the image. For example, if you want to apply a blur filter to an image, you can use a for-loop to iterate over all pixels and apply the filter to each pixel.

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MASKING:

Masking involves creating a binary mask image that identifies the regions of an image to be processed. The mask can be created manually or automatically based on certain criteria such as pixel intensity, color, or texture. The mask can then be used to selectively apply operations to the desired regions of the image.

SEGMENTATION:

Segmentation involves dividing an image into distinct regions based on certain criteria such as color, texture, or pixel intensity. Each region can then be processed separately using different techniques or operations.

THANK YOU!